Poulner Junior School

Maths Curriculum Intent, Implementation and Impact.

The National Curriculum for mathematics intends to ensure that all pupils:

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.

The programmes of study are organised into distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. At Poulner, developing a 'mastery approach' and 'growth mind-set' are at the heart of our whole school curriculum. Therefore, we draw upon a variety of resources to inform our Mathematics teaching and learning, with deepening understanding used to extend fluency, reasoning and problem solving.

Intent

The habits of thinking mathematically are life enriching. Enjoyment, confidence and deep curiosity about Maths is fundamental in every lesson at Poulner and we intend to provide engaging and appropriately challenging tasks, which provoke a sense of enquiry, through fluency, reasoning and problem solving, whilst exposing learners to a variety of ways of thinking. We intend for all new mathematical concepts are introduced using a 'Concrete, Pictorial and Abstract' approach so clear models and images aid understanding. Children are encouraged to demonstrate their understanding in ways that are meaningful to them; developing their thinking through questions, discussion and practical opportunities, making learning meaningful and relevant to the world around them.

Implementation

Planning

1. **<u>A whole school approach</u>**
    - Carefully planned activities that direct children's learning.
    - Teachers consider modifications or adaptions which may be required should learners struggle to grasp concepts and for those who grasp concepts quickly within a lesson. The use of Hampshire 'Small steps documents' are used to break learning down into manageable steps and planning of greater depth tasks to challenge and deepen learners' understanding further rather than simply accelerating to new content.

2. **Assessment**
    - In order to address the aims of the National Curriculum and to ensure assessment is accurate, the Hampshire Assessment Model informs our planning. As well as Hampshire small steps documents for those children who have SEND.
    - Pre-assessments are used prior to starting a new unit to identify children's starting points.

3. **Long Term Planning**
    - Objectives are revisited throughout the year to enhance understanding and continues to develop mathematical understanding of different concepts in depth.
    - Planning is organised so that blocks of work include several domains and provide opportunities and context for a range of problem solving.

4. **Key Teaching and Learning Points**
    - These are identified through pre assessments facilitated prior to planning which then proceed to inform a learning journey.
    - Within classrooms, learning journeys will be seen on flipcharts on Working Walls, questions will probe learners understanding throughout and children are encouraged to respond using precise mathematical vocabulary.
    - Regular revisit key concepts and knowledge through repeating domains in different combinations.

5. **Teaching & Learning**
    - The pitch and pace of the work is sensitive to the rate at which children learn while ensuring expectations are kept high and progress is made by all children
    - Teachers have secure subject knowledge so that assessment of children's learning is secure and accurate.
    - Marking and feedback is regular and meaningful to move learning forward in order to ensure every child meets their full potential.
    - Retrieval practise - a strategy in which calling information to mind subsequently enhances and boost learning - is used through carefully designed '5 a day' Arithmetic and basic math skills practised daily to ensure key mathematical concepts are embedded and children can recall this information by having 'facts at their fingertips' to see the links between topics in Maths.
    - Pre-teaching and interventions are used to support children to ensure they are ready for their next Maths lesson.
    - Lessons include dual coding; the use of Concrete, Pictorial and Abstract approach to guide children through their understanding of mathematical processes by using, multi-representations and combining words and visuals. As well as, elaboration - going deeper, mastery, asking how and why for example different ways to get to a solution.
    - Homework is set to develop and review children's learning.

6. **Whole school events**
    - We celebrate National Maths week.
    - We also have year group competitions on TTRS.
    - These bring the whole school together to concentrate on one theme.

Highly effective teaching and learning is dependent on building upon what children already know.

7. **Continuing Professional Development (CPD)**
    - We continuously strive to better ourselves and frequently share ideas and things that have been particularly effective.
    - We take part in training opportunities, New Forest subject leader meetings and Maths Hub NCETM work groups.

Impact

1. **Pupil Voice**

- Through discussion and feedback, children talk enthusiastically about their maths lessons and speak about how they love learning about maths.
- They can articulate the context in which maths is being taught and relate this to real life purposes and show confidence in their learning of new maths skills.

2. **Learning Walks and Book looks**

- Mastery of mathematical concepts or skills are when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
- Children demonstrate a quick recall of facts and procedures. This includes their times tables up to 12 times.
- Learners will demonstrate the use of independent, efficient methods and resilience when tackling problems.
- Children show a high level of pride in the presentation and understanding of the work.
- Engaged children who are all challenged.
- Lessons that use a variety of resources to support learning including appropriate challenge.
- Learning that is tracked and monitored to ensure all children make good progress.

This will ensure that by the ***end of Lower key stage 2*** *Pupils becoming increasingly fluent with;*

- Whole numbers.
- The four operations.
- Number facts.
- The concept of place value.
- Memory and recall of all 12 multiplication tables.
- Reading and spelling of mathematical vocabulary.

Pupils having developed;

- Efficient written methods.
- Efficient mental methods.
- calculation accurately with increasingly larger whole numbers (up to 4 digits)
- their ability to solve a range of problems (including simple fractions and decimal place value)
- Increasing accuracy with mathematical reasoning in order to analyse shape and their properties, describing relationships between them.
- The accurate use of measuring instruments

Understanding of the connections between measure and number.

And *by the* ***end of Upper key stage 2*** *pupils should be fluent in;*

- Written methods for all operations, including long multiplication and division.
- Written methods for in working with fractions, decimals and percentages.
- Reading, spelling and pronouncing of mathematical vocabulary correctly.

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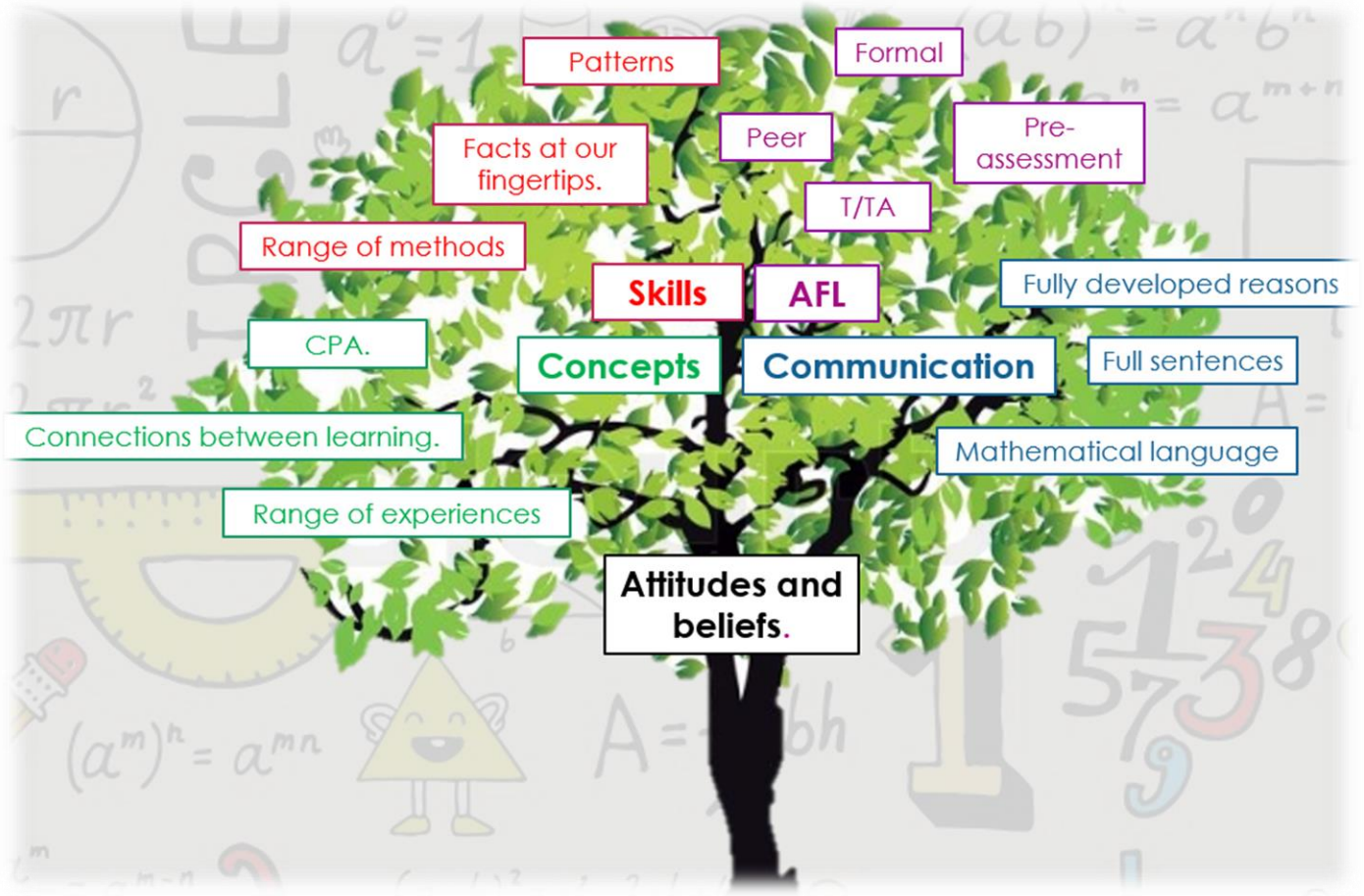
Pupils should extend their extend and develop;

- Their understanding of the number system and place value with increasingly larger numbers.
- The connections they make between multiplication and division with fractions, decimal, percentages and ratio.
- Their ability to solve a wider range of problems, including increasingly complex properties of number and arithmetic.
- Their ability to solve problems involving efficient written methods and mental methods of calculations.
- Understanding of the language of algebra for solving a range of problems.
- Knowledge of number through Geometry and Measure.
- Understanding of classifying shape with increasingly complex properties and the vocabulary to describe them



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